CCACGCGTCCGCGCGGGAGCTGCTTGGAGGCTCGGCGGCCGGGAGGAGGCCGGGGCCACGCTTCTTGGAA
GCTACTGAGTGACTTCTTTGAAGAACCATGAAGTCACACTATATTGTGCTAGCTCTAGCCTCCCTGACGT
TCCTGCTGTGTCTCCCCGTGTCCCAGAGCTGTAACAAAGCACTCTGTGCCAGCGATGTGAGCAAATGCCT
CATTCAGGAGCTCTGCCAGTGCCGGCCTGGAGAAGGGAACTGCCCCTGCTGTAAGGAGTGCATGCTGTGC
CTCGGGGCCCTGTGGGACGAGTGCTGCGACTGTGTCGGTATGTGCAACCCTCGGAATTACAGCGACACCC
CGCCCACATCCAAGAGCACCGTGGAGGAGCTGCACGAGCCCATTCCGTCCCTGTTCAGGGCGCTGACGGA
GGGCGACACCCAGCTGAACTGGAACATCGTCTCCTTCCCTGTGGCAGAGGAGCTGTCACACCATGAAAAC
CTAGTCTCCTTCCTAGAAACTGTGAACCAGCTGCACCACCAAAACGTGTCTGTTCCCAGCAACAATGTCC
ACGCCCCCTTCCCCAGCGACAAAGAGCGCATGTGCACAGTGGTTTACTTTGATGACTGCATGTCCATCCA
CCAGTGTAAGATATCCTGCGAATCCATGGGTGCATCCAAGTATCGCTGGTTTCACAACGCCTGCTGCGAG
TGCATCGGTCCAGAGTGCATTGACTATGGGAGTAAAACTGTCAAGTGTATGAACTGCATGTTTTAAAGAG
GGGGAAGAAATGCAAACCAAAGCAAGAACGCTGACGATGCCGTTGACACTCCTACCTTGCAGGATGTCCC
CACAGAGTCCACTGGACCAGCTTGTACAAGGGTGAAACCTTTCTGCGTCACCTTTCTGCTTTTGCAGAGC
CATGACAGCAGCTGCCTTACAGCGTGATTTAGCAGACAGACCTGACAGGTGTGTCATGTGACAGGCAGCC
ATCAGGGTGGCCTAGCACATTTGTGGGTGCTGATGTTGTATTGCACTGTCAAAGACTGACCAGTCCTGAT
AGGGCTGGAAAGAGGAAAGGGGTGTGGGAAGGTGACTTTCTTAGCTCTCCCGTAGCAGCACACTGTCATA
GTGTCTCAGTGTCATATTGCTGTGAAGAGACACCACAACCAAGGCAGCTTATGAAGAAAGCCCTTAATTA
GGGCTCGCTTTACAGTTCCGAGGTTACTTCCTGGTCGTCGTGGTGGGGATGAGGCAGTAGGTAGCAGGCA
TGGTGCTGGAGCAGTAGCTGAATGTTGGTTCACAAACTTAGCACCTCGAGTCATGATAGAAACACCATCC
AGGCCTTGAAGCCCAACACGTAGCAACACCACTTGCCAAAGCAGGATCAAGGCTCTGTCAGCGTCCCAGG
ATGCAGTTGGGCAAGTTCTTGAGTGAAATTCCTATACATACTAACTCTGCAATTTTGCTTCTATAGTTCC
TCTTCTTGTTAACTATATGTCCAGAACCATTTCAGAATATGG
GTTTTTGTGAATAAAAAAAATAAAAAGGCCTGGTCTGCATAGATTGGGCAAGTTCCCTTGCAGCCACAGG
CTAACAGTAAAGACTTTCTATTTGGCTTTAGGAGTATCCAAGGGGTGGTCTCTCGTGAGAGTACCTCGCA
ACAGCAGCAGATGGTGTTGGAGGCTTGGCCTGCTGTGGGCTTTTGAAACCTTAAAGTCCACCCCCAGTGA
CACGCCTCCTCCAATAACACCACACCTCCTAATCCTTTCTAAGTAGTCCCTCAACTGGGAACCAAGCATT
CAGATATACGAGCCCACAAAGGCCATTCTCGTTCAAACCACCACATGTAATAAAATATATGCCACGTCAA
AAAAAAAAAAAAAAAAA (SEQ ID NO:1)

MKSHYIVLALASLTFLLCLPVSQSCNKALCASDVSKCLIQELCQCRPGEGNCPCC
KECMLCLGALWDECCDCVGMCNPRNYSDTPPTSKSTVEELHEPIPSLFRALTEG
DTQLNWNIVSFPVAEEELSHHENLVSFLETVNQLHHQNVSVPSNNVHAPFPSDKE
RMCTVVYFDDCMSIHQCKISCESMGASKYRWFHNACCECIGPECIDYGSKTVKC
MNCMF (SEQ ID NO:2)

FIG. 1

red underlined = deleted in targeting construct

green = sequence flanking Neo insert in targeting construct

```
CCACGCGTCCGCGCGGGAGCTGCTTGGAGGCTCGGCGGCCGGGAGGAGGCCGGGGCCACG
CTTCTTGGAAGCTACTGAGTGACTTCTTTGAAGAACCATGAAGTCACACTATATTGTGCT
AGCTCTAGCCTCCCTGACGTTCCTGCTGTGTCTCCCCGTGTCCCAGAGCTGTAACAAAGC
ACTCTGTGCCAGCGATGTGAGCAAATGCCTCATTCAGGAGCTCTGCCAGTGCCGGCCTGG
AGAAGGGAACTGCCCCTGCTGTAAGGAGTGCATGCTGTGCCTCGGGGCCCTGTGGGACGA
GTGCTGCGACTGTGTCGGTATGTGCAACCCTCGGAATTACAGCGACACCCCGCCCACATC
CAAGAGCACCGTGGAGGAGCTGCACGAGCCCATTCCGTCCCTGTTCAGGGCGCTGACGGA
GGGCGACACCCAGCTGAACTGGAACATCGTCTCCTTCCCTGTGGCAGAGGAGCTGTCACA
CCATGAAAACCTAGTCTCCTTCCTAGAAACTGTGAACCAGCTGCACCACCAAAACGTGTC
TGTTCCCAGCAACAATGTCCACGCCCCCTTCCCCAGCGACAAAG[AGCGCATGTGCACAGT
GGTTTACTTTGATGACTGCATGTCCATCCACCAGTGTA]AGATATCCTGCGAATCCATGGG
TGCATCCAAGTATCGCTGGTTTCACAACGCCTGCTGCGAGTGCATCG[GTCCAGAGTGCAT
TGACTATGGGAGTAAAACTGTCAAGTGTATGAACTGCATGTTTTAAAGAGGGGGAAGAAA
TGCAAACCAAAGCA]AGAACGCTGACGATGCCGTTGACACTCCTACCTTGCAGGATGTCCC
CACAGAGTCCACTGGACCAGCTTGTACAAGGGTGAAACCTTTCTGCGTCACCTTTCTGCT
TTTGCAGAGCCATGACAGCAGCTGCCTTACAGCGTGATTTAGCAGACAGACCTGACAGGT
GTGTCATGTGACAGGCAGCCATCAGGGTGGCCTAGCACATTTGTGGGTGCTGATGTTGTA
TTGCACTGTCAAAGACTGACCAGTCCTGATAGGGCTGGAAAGAGGAAAGGGGTGTGGGAA
GGTGACTTTCTTAGCTCTCCCGTAGCAGCACACTGTCATAGTGTCTCAGTGTCATATTGC
TGTGAAGAGACACCACAACCAAGGCAGCTTATGAAGAAAGCCCTTAATTAGGGCTCGCTT
TACAGTTCCGAGGTTACTTCCTGGTCGTCGTGGTGGGGGATGAGGCAGTAGGTAGCAGGCA
TGGTGCTGGAGCAGTAGCTGAATGTTGGTTCACAAACTTAGCACCTCGAGTCATGATAGA
AACACCATCCAGGCCTTGAAGCCCAACACGTAGCAACACCACTTGCCAAAGCAGGATCAA
GGCTCTGTCAGCGTCCCAGGATGCAGTTGGGCAAGTTCTTGAGTGAAATTCCTATACATA
CTAACTCTGCAATTTTGCTTCTATAGTTCCTCTTCTTGTTAACTATATGTCCAGAACCAT
TTCAGAATATGGGTTTTTGTGAATAAAAAAAATAAAAAGGCCTGGTCTGCATAGATTGGG
CAAGTTCCCTTGCAGCCACAGGCTAACAGTAAAGACTTTCTATTTGGCTTTAGGAGTATC
CAAGGGGTGGTCTCTCGTGAGAGTACCTCGCAACAGCAGCAGATGGTGTTGGAGGCTTGG
CCTGCTGTGGGCTTTTGAAACCTTAAAGTCCACCCCCAGTGACACGCCTCCTCCAATAAC
ACCACACCTCCTAATCCTTTCTAAGTAGTCCCTCAACTGGGAACCAAGCATTCAGATATA
CGAGCCCACAAAGGCCATTCTCGTTCAAACCACCACATGTAATAAAATATATGCCACGTC
AAAAAAAAAAAAAAAAAAA (SEQ ID NO:1)
```

FIG. 2A

Gene Sequence Structure *
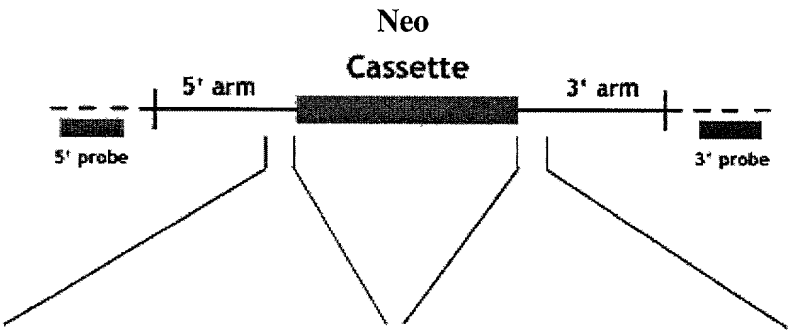
639 bp   Sequence Deleted   707 bp

Size of full-length cDNA: 1879 bp

Targeting Vector* (genomic sequence)

Construct Number: 203

Neo

Cassette

5' arm   3' arm

5' probe   3' probe

Arm Length:
5': 1.9 kb
3': 3.6 kb

——————— Targeting Vector
— — — — — Endogenous Locus

* Not drawn to scale

```
5'>AACAAATGAAGATCTTTTGTC
CCTCGTTTTTGTCCTGTGCTGATG
AGCAGTAAGAGGGCTAGAAAGTAA
CTGCAGGTATTCTCTGAGCAAGCG
AGCGAGTGGCCGAGCTCTTCCTGC
CTGTACTGAAATGTCCCTTTGCAT
TTCAGAGCGCATGTGCACAGTGGT
TTACTTTGATGACTGCATGTCCAT
CCACCAGTGTA<3' (SEQ ID
NO:3)
```

```
5'>GTCCAGAGTGCATTGACTATG
GGAGTAAAACTGTCAAGTGTATGA
ACTGCATGTTTTAAAGAGGGGGAA
GAAATGCAAACCAAAGCAGTAAGT
CATGAAGTGTGCAGAAATCTTGGT
TCTGGTATGCTAGGAGTGTGTTAA
GTTATATGATTGTAACTGTGCTTT
TTATATCTGGTGCCTATTAGTGTA
GGTCTTTTCCA<3' (SEQ ID
NO:4)
```

FIG. 2B